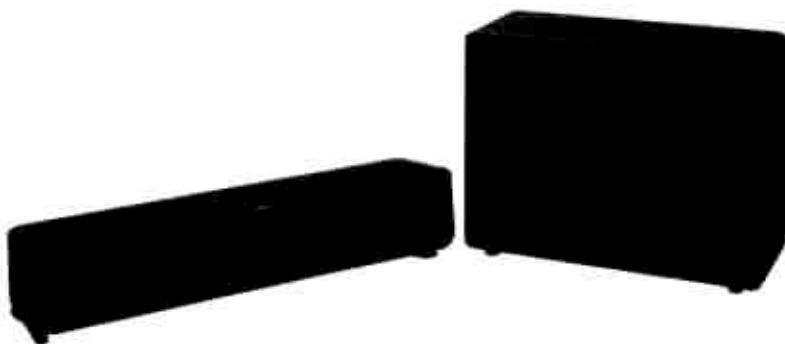


# ONKYO® SERVICE MANUAL

**Virtual Surround Unit**  
**MODEL PHC-5C**

**Dual Driver Subwoofer**  
**MODEL PHC-5SW(MD ONLY)**



BMD	120V AC, 60Hz
BMP	230V AC, 60Hz

#### **SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

**ONKYO®**  
**AUDIO COMPONENTS**

## SERVICE PROCEDURES

### 1. Replacing the fuse

 This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

 Ce symbole indique le fusible utilisé est à rapide. Pour une protection permanente, n'utiliser que des fusibles de même type. Ce damier est indiqué là où le présent symbole est apposé.

### 2. Safety-check out (Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel. Specifications : 3.3M ohm  $\pm 10\%$  at 500V.

PHC-5C	CIRCUIT No.	PART No.	DESCRIPTION
	F901	252159	2A-UL/T-237 <D>
	F901	252070	1A-SE-EAK <P>
PHC-5SW	CIRCUIT No.	PART No.	DESCRIPTION
	F904	252159	2A-UL/T-237 <D>
			NOTE: <D> : 120V model only <P> : European model only <T> : Asian model only <W> : Worldwide model only <R> : Chinese model only <A> : Australian model only

### SPECIFICATIONS

#### PHC-5 SW (SUBWOOFER)

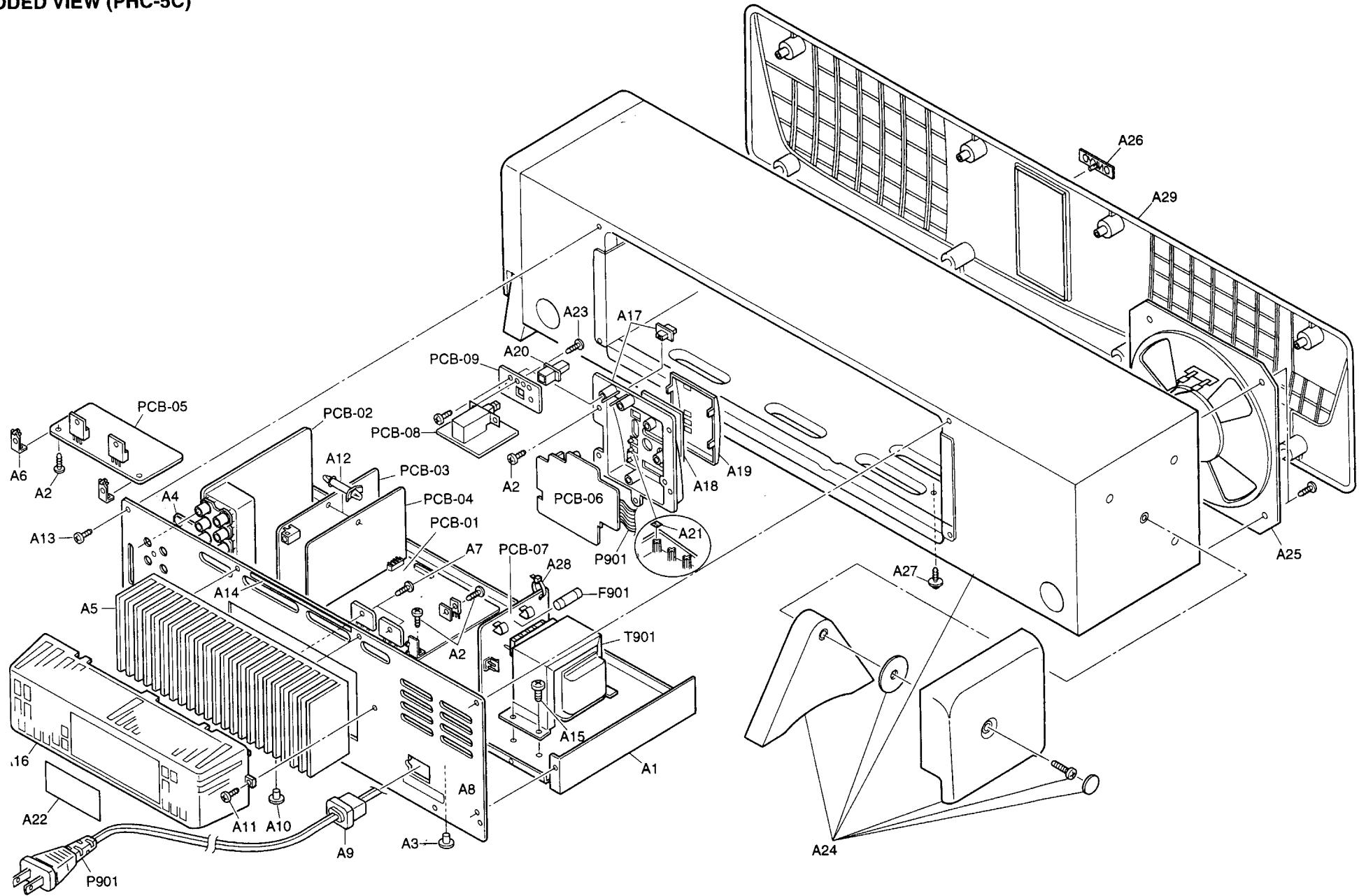
Power output	50 Watts min.RMS. into 6 ohms at 50 Hz with no more than 5% total harmonic distortion.
Dual drive woofer	6.5"x 2 (16cm x 2)
Bass reflex System	
Power supply rating	AC 120V, 60Hz
Dimensions	18 11/16"W x 13 1/2"H x 8 1/4"D (457W x 343H x 209D mm)
Weight	24.0 lbs (10.9 kg)

#### PHC-5(CENTER UNIT)

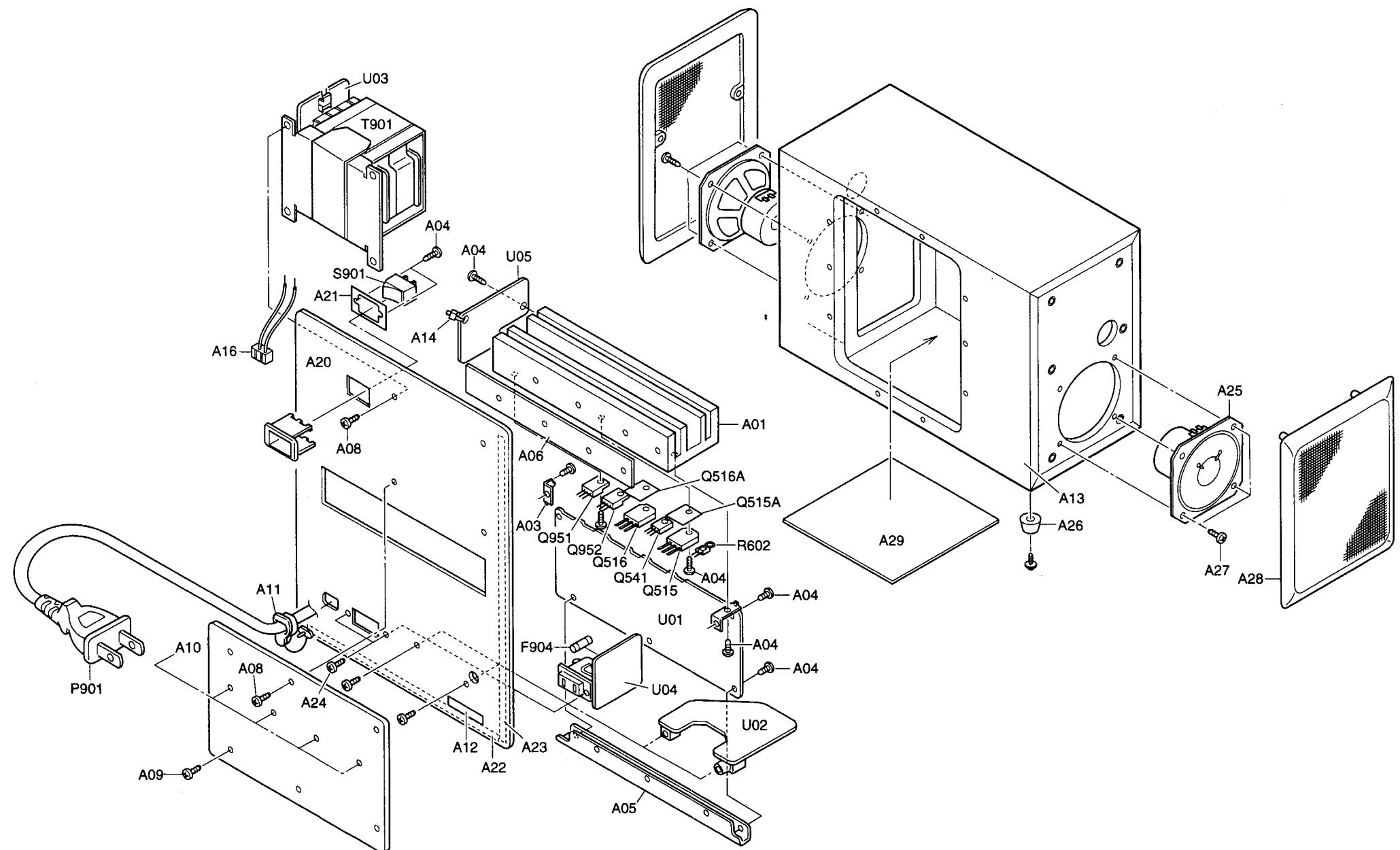
Power output	Continuos Average Power Output 30 W x 2 at 6 ohms min. RMS. both channel driven from 100 Hz to 20 kHz no more than 5% THD.
Input sensitivity and impedance	38W x 2 at 6 ohms (EIA) 200mV, 50k ohms
LINE (TV,VIDEO,AUX)	4"x 2 (10cm x 2)
OMF cone speaker size	AC 120V, 60Hz
Power supply rating	25" W x 5 3/16" H x 8 1/8" D (634W x 131H x 206D mm)
Dimensions	
Weight	14.6 lbs (6.6 kg)

Specifications and external appearance are subject to change without notice because of product improvements.

DED VIEW (PHC-5C)



## DED VIEW (PHC-5SW)



# PARTS LIST(PHC-5C)

REF. No.	PARTS No.	DESCRIPTION	REF. No.	PARTS No.	DESCRIPTION
A1	27100367B	Chassis	F901	252070	△ 1A-SE-EAK FUSE <MP>
A2	838130088	3TTB+8B Self tapping screw	F901	252159	△ 2A-UL/T-237 FUSE <MD>
A3	27190428-1	LSR-10R Holder	P801	2045242512	NCFC5-242512 Flexible flat cable
A4	28141387	Cushion	P901	253271HIT	△ AS-UC-6#18 Power cord <MD>
A5	27160424A	Heat sink	P901	253193HIT	△ AS-CEE Power cord <MP>
A6	27141729	(S) Retainer	T901	2301363	△ NPT-1353D Power transformer
A7	801433	3SMS8W.SW+14B(BC) Screw	T901	2301390	△ NPT-1361P Power transformer <MP>
A8	27122524C	MJ/MP Rear panel <MP>	N PCB-01	1A819553-1A	NAAR-6453-1A Power supply PC board ass'y <MD>
A8	27122523B	MD Rear panel	N PCB-02	1A819554-1A	NAAF-6454-1A Input circuit PC board ass'y <MD>
A9	27300750	△ S-RELIEF #2271 Bushing	PCB-03	1A819555-1A	NADG-6455-1A DSP circuit PC board ass'y <MD>
A10	27190813	KGPS-10RF Holder	PCB-04	1A819556-1A	NAAF-6456-1A Volume circuit PC board ass'y <MD>
A11	838430088	3TTB+8B(BC) Self tapping screw	PCB-05	1A819557-1A	NAAF-6457-1A Power amplifier PC board ass'y <MD>
A12	27190062	KGLS-12S Holder	PCB-06	1A819558-1A	NADIS-6458-1A Display circuit PC board ass'y <MD>
A14	28141388	Cushion <MP>	PCB-07	1A819559-1A	NAETC-6459-1A Transformer PC board ass'y <MD>
A15	830440089	4TTC+8C(BC) Self tapping screw	PCB-08	1A819560-1A	NASW-6460-1A Power switch PC board ass'y <MD>
A16	28184749A	(Heat sink) Cover	PCB-01	1A819553-3B	NAAR-6453-3B Power supply PC board ass'y <MP>
A17	27191064A	(KNOB) Holder	PCB-02	1A819554-3B	NAAF-6454-3B Input circuit PC board ass'y <MP>
A18	28133383B	B Plate	N PCB-03	1A819555-3B	NADG-6455-3B DSP circuit PC board ass'y <MP>
A19	28191841	Clear plate	PCB-04	1A819556-3B	NAAF-6456-3B Volume circuit PC board ass'y <MP>
A20	28325639	(Power) Knob	PCB-05	1A819557-3B	NAAF-6457-3B Power amplifier PC board ass'y <MP>
A21	28141390	Cushion	PCB-06	1A819558-3B	NADIS-6458-3B Display circuit PC board ass'y <MP>
A22	29362402	(Safety) Label <MP>	PCB-07	1A819559-3B	NAETC-6459-3B Transformer PC board ass'y <MP>
A23	838430107	3TTB+10S(BC) Self tapping screw	PCB-08	1A819560-3B	NASW-6460-3B Power switch PC board ass'y <MP>
A24	28110761	Cabinet AS	N		
A25	PD10410A	10cm Speaker	N		
A26	MK391A	ONKYO logo batch			
A27	837440169	4TTT+16C(BC) Self tapping screw			
A28	260208	Binder(CLAMPER)UL			
A29	28120385	(CENTER) Net AS			
A30	28175248	(PT) ISO plate. Only use the <MP>			
A31	28175249	(Power SW.) ISO plate. Only use the <MP>			

NOTE: THE COMPONENTS IDENTIFIED BY MARK  
 △ ARE CRITICAL FOR RISK OF FIRE AND  
 ELECTRIC SHOCK. REPLACE ONLY WITH  
 PART NUMBER SPECIFIED.

## PARTS LIST(PHC-5C)

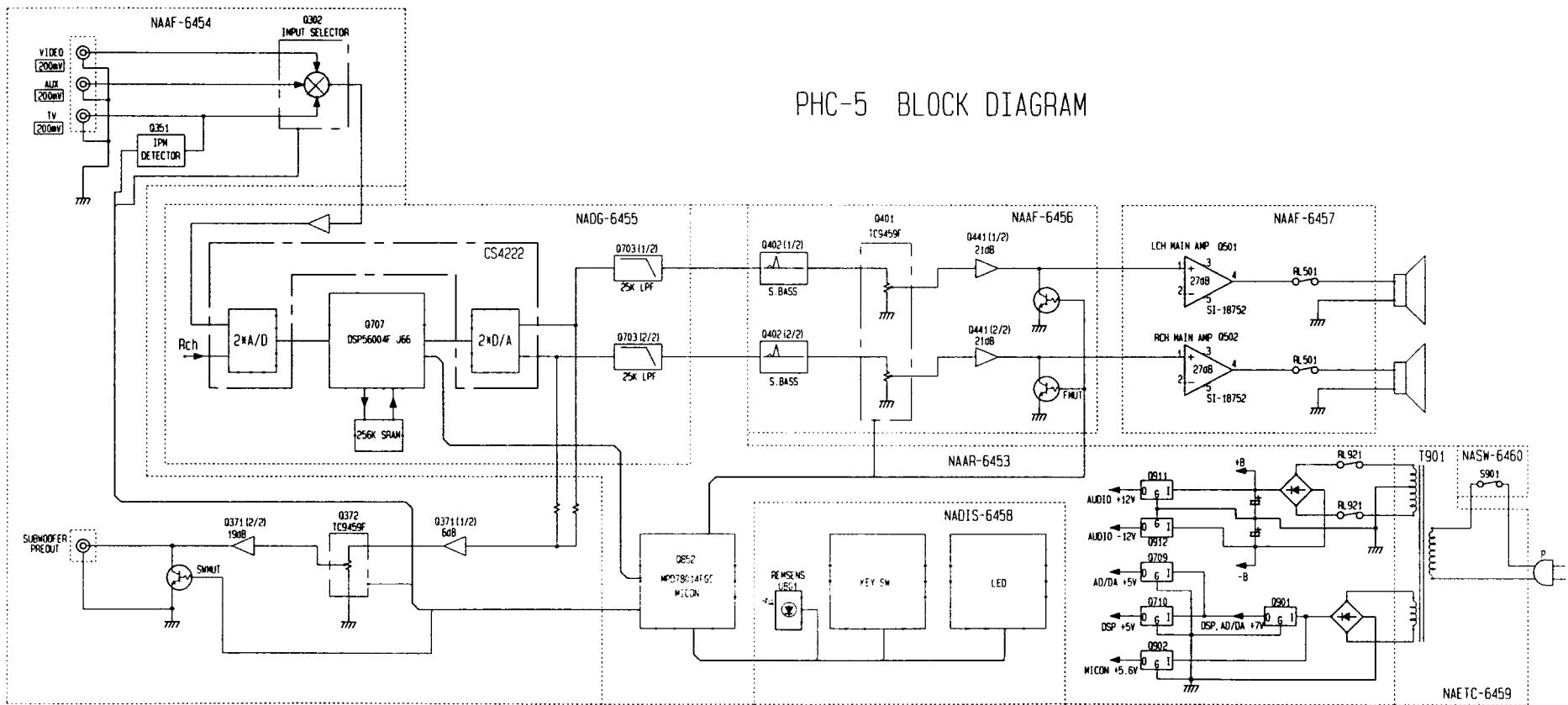
CIRCUIT No.	PART No.	DESCRIPTION	CIRCUIT No.	PART No.	DESCRIPTION
Power supply PC board ass'y(NAAR-6453)				Capacitors	
Q374,Q410	2213510 or	DTA114ES or	C382,C485,C856	354741009	CE04W16V-10M Electric.
Q374,Q410	2214350 or	RN2202 or	C851,C854	354721019	CE04W6.3V-100M Electric.
Q374,Q410	2215770	KRA102M	C852,C853	3000076 or	EECS5R5T104 or
Q375 or	2213631 or	RN1241-A or	C855	375524744	MMT50V-474J Plastic
Q375	2213632	RN1241-B	C913	354780109	CE04W50V-1M Electric.
Q411,Q412	2213632 or	RN1241-B or	C914,C917	354761019	CE04W35V-100M Electric.
	2213631	RN1241-A	C916,C919,C929,	354744729S	CE04W16V-4700M
Q801-Q807,	2213290 or	DTC114ES or	C930	354741009	CE04W16V-10M Electric.
Q851, Q853	2214230 or	RN1202 or	C921-C923,C931	374721034	ECQ-B50V-103J
	2215960	KRC102M	N C924	374731044	ECQ-V100-104J Plastic(TF)
Q921	2213640 or	DTC123JS or	C925,C926	3504312	CE04W40V-4700M
Q921	2214660 or	RN1205 or	C925A,C926A	27270421	(C) Cover of capacitor
Q921	2215830	KRC105M	C927,C928	354781009	CE04W50V-10M Electric.
	Ics			Others	
Q441	22240581R0	NJM4565M	N X851	3010239	CST10.0MTW Ceramic
Q852	22241283	MPD78012FGC-621	N RL921	25065537	 NRL-2P5A-DC12-107
Q901	222780075	78M07HF	L851	231237K470R	NCH-1479 Choke coil
Q901A	27160220	HEAT-SINK(RAD-51(B))	JL502B	25051112	NSCT-8P899 Wire holder
Q901B	82143010	3P+10FN(BC) tapping screw	JL901B	25050268	NSCT-4P96 Socket
Q902	222780565JR	78M56(NJM78M56FA)	JL902B	25050267	NSCT-3P95 Socket
Q911	222780125	78M12HF	E901	27141059	Retainer(Ground)
Q911A	27160220	HEAT-SINK(RAD-51(B))			
Q911B	82143010	3P+10FN(BC) tapping screw			
Q912	222790125	79M12HF	Q301,Q311,Q321	22240581R0	NJM4565M
Q912A	27160220	HEAT-SINK(RAD-51(B))	Q302	222840521R0	4052BF(TC4052BF)
Q912B	82143010	3P+10FN(BC) tapping screw	Q351,Q371	22240581R0	NJM4565M
	Resistors		Q372	22241220R0	TC9459F
R856,R921	443523914	RS1/2WBJ-390 Metal oxide.		Transistors	
R901	453532294	RNU1/2WCJ-0.22 Metal R.	N Q373	2213631 or	RN1241-A or
R901	4500233	RNU1/4WK-0.22 Metal <MP>		2213632	RN1241-B
R902	443521004	RS1/2WBJ-10 Metal oxide.		Diodes	
R902	4500179	RNU1/4WJ-10 Metal <MP>	N C383	354784799	CE04W50V-0.47M Electric.
R912,R914-R916	443524704	RS1/2WBJ-47 Metal oxide.	D301,D302	224490620R0	UDZ6.2B Zener
R915	443525604	RS1/2WBJ-56 Metal oxide <MP>	D351,D352,D371	223234R0	1SS352
R916	443525604	RS1/2WBJ-56 Metal oxide <MP>		Resistors	
R921	443522714	RS1/2WBJ-270 Metal oxide <MP>	R331,R332	443523314	RS1/2WBJ-330 Metal oxide.
R922	443521804	RS1/2WBJ-18 Metal oxide <MP>		Capacitors	
R931	4500233	RNU1/4WK-0.22 Metal <MP>	N C357	354721019	CE04W6.3V-100M Electric.
	Sockets		C378	354724719	CE04W6.3V-470M Electric.
P304	25051236	NSCT-11P1026 Socket	C303,C304,C313,C314	354741009	CE04W16V-10M Electric.
P801B	25051982 or	NSCT-24P1769 or	C323,C324,C331,C332	354741009	CE04W16V-10M Electric.
		NSCT-24P1563 Socket	C351-C353,C356	354741009	CE04W16V-10M Electric.
	Plugs		C372,C373,C376	354744709	CE04W16V-47M Electric.
P303B	25055702	NPLG-6P658 Plug	C380	354744709	CE04W16V-47M Electric.
P304B	25055707	NPLG-11P663 Plug	C355	374721034	ECQ-B50V-103J
P401B	25055702	NPLG-6P658 Plug	C381	374723324	ECQ-B50V-332J
P402B	25055703	NPLG-7P659 Plug		Others	
P701B	25055704	NPLG-8P660 Plug	E803	27150434	(J) Shield plate
P702B	25055707	NPLG-11P663 Plug	P301	25045300	NPJ-6PD6L159 Jack
	Coils		P302	25045302	NPJ-1PD6L161 Jack
D404,D851-D855	223234R0	1SS352	P303	25051231	NSCT-6P1021 Socket
D856	224490620R0	UDZ6.2B Zener			
D901-D909	22380260	RL1N4003			
	22380032 or	1SR139-100 or			
	22380035 or	GP104003E or			
D910,D921	223234R0	1SS352			
D911	22380285F or	RS403M or			
	22380022F	RBV402			
D911A	27160166	HEAT-SINK(DX-200)			
D911B	82143010	3P+10FN(BC) Tapping screw			
D921	3000078	DX-5R5L104			

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT No.	PART No.	DESCRIPTION	CIRCUIT No.	PART No.	DESCRIPTION
<b>DSP circuit PC board ass'y(NADG-6455)</b>					
<b>ICs</b>					
Q701-Q703	22240053R0	NJM4558M	Q501,Q502	22240383S	SI-18752LF907
Q704	22241128R9	CS4222-KS		<b>Transistors</b>	
Q705	222740046R0	74HCU04(TC74HCU04F)	Q511	2213640 or	DTC123JS or
Q706	22241126R9	TC74HC4040AF		2214660 or	RN1205 or
Q707	22240940R3	DSP56004FJ66		2215830	KRC105M
Q708	22241207R9	MSM5256DPF-55L or	Q512,Q513	2213284 or	2SC1740S-R or
	22241208R9	LHS2266CN-70LL or		2212115	2SC2458-GR
	22241108R9	MSM5256DPF-70L	N Q514	2213510 or	DTA114ES or
Q709,Q710	222780053	78L05		2215770 or	KRA102M or
<b>Diodes</b>					
D701-D703,D705	223234R0	1SS352		<b>Diodes</b>	
D704	224490620R0	UDZ6.2B Zener	D501	223234R0	1SS352
<b>Capacitors</b>					
C701,C702,C725,C726	354741009	CE04W16V-10M Electric.	C501,C502	224490510R0	UDZ5.1B Zener
C727-C730,C756,	354741009	CE04W16V-10M Electric.		<b>Capacitors</b>	
C757				354741009	CE04W16V-10M Electric.
C760					
C740	354741019	CE04W16V-100M Electric.	C507,C508	354743319	CE04W16V-330M Electric.
C707,C708	374722224	ECQ-B50V-222J Plastic(TF)	C509-C512	374732734	ECQ-V100-273J Plastic(TF)
C713-C716	374721824	ECQ-B50V-182J Plastic(TF)	C513-C516	354761019	CE04W35V-100M Electric.
C717-C720	374722224	ECQ-B50V-222J Plastic(TF)	C521	374721044	ECQ-V50V-104J
C733,C736,C742	354721019	CE04W6.3V-100M Electric.	C522	354722219	CE04W6.3V-220M Electric.
C735,C747,C749	375524744	MMT50V-474J Plastic	C523	354780109	CE04W50V-1M Electric.
C746	374722234	ECQ-B50V-223J Plastic(TF)	R509	453530224	Resistors
<b>Coils</b>					
L701-L705	231237K470	NCH-1479 Choke coil	R510	453530224	RNU1/2WCJ-2.2 Metal R.
L706	230921R0	BLM21B222SPT Choke coil			RNU1/2WCJ-2.2 Metal R.
L708,L709	231237K470	NCH-1479 Choke coil	RL501	25065517	Others
<b>Others</b>					
P701A	25051233	NSCT-8P1023 Socket	JL501B	25056527	NRL-2P5A-DC24-098
P702A	25051236	NSCT-11P1026 Socket	JL502	8J100606H	NPLG-6P589 Wire trap
P703	25055042	NPLG-3P32 Plug	JL502A	25050272	JL8 100 H Jumper lead
X701	3010278	CST12.2MTW040 Cera. lock	P503A	25055165	NSCT-8P100 Socket
E801	25065425	NEGITANSI M3	P504A	25055165	NPLG-2P149 Plug
<b>Volume circuit PC board(NAAF-6456)</b>					
<b>ICs</b>					
Q401	22241220R0	TC9459F	D810-D817	225137DG or	SEL2413E-DG or
Q402,Q405,Q406	22240581R0	NJM4565M	D801-D809	225137CG	SEL2413E-CG LED
<b>Transistors</b>					
Q407 or	2213631 or	RN1241-A or	D801A	225141	SEL2213C LED
Q407	2213632	RN1241-B	D802A	27191067A	(ST) Holder
Q408 or	2213631 or	RN1241-A or	D809A	27191065	(INP) Holder
Q408	2213632	RN1241-B	D810A	27191066	(LEV) Holder
Q409 or	2214350 or	RN2202 or	D811A	27191068A	(DIS) Holder
Q409	2213510	DTA114ES	C803	355741009	(WID) Holder
<b>Capacitors</b>					
C401,C402,C421,C422	354744709	CE04W16V-47M Electric.	S801-S804	355741009	CE04W16V-10M Electric.
C429,C430,C447,C448			U801	25035652	NPS-111-S604 Switch
C403,C404	354742209	CE04W16V-22M Electric.		<b>Switches</b>	
C413,C414	374726834	ECQ-V50V-683J Plastic(TF)	P801A	241329	25051804
C415,C416	354784799	CE04W50V-0.47M Electric.			NSCT-24P1591 Socket
C417,C418	374721544	ECQ-V50V-154J Plastic(TF)			
C427,C428	354741019	CE04W16V-100M Electric.	C902	3500077	Transformer PC board(NAETC-6459)
C441,C442	354780229	CE04W50V-2.2M Electric.	F901A	25050065	DE7150F-472M IS
C443,C444	374724744	ECQ-V50V-474J Plastic(TF)	JL901	4J100606H	YSH403T Fuse holder
C445,C446	374721244	ECQ-V50V-124J Plastic(TF)	JL901A	25051108	JL4 100 H Jumper lead
C460	354780109	CE04W50V-1M Electric.	JL902	3J100606H	NSCT-4P895 Wire holder
<b>Others</b>					
JL501	6J100606B15	JL6 100 B(7-7) Jumper lead	JL902A	25051107	JL3 100 H Jumper lead
JL501A	25051090	NSCT-6P877 Wire holder	P901A	25055675	NSCT-3P894 Wire holder
P401A	25051231	NSCT-6P1021 Socket	P902A	2009990531U	NPLG-2P631 Plug
P402A	25051232	NSCT-7P1022 Socket			NSAS-2P0696 Socket AS
<b>Power switch PC board(NASW-6460)</b>					
<b>Power amplifier circuit PC board(NAAF-6457)</b>					
<b>ICs</b>					
				3500191	DE7150F-103M IS
				27301216	SB1925A C cover
				25055676	NPLG-2P632 Plug
				25035550	NPS-111-L512P Power

## BLOCK DIAGRAM

PHC-5 BLOCK DIAGRAM



A

B

C

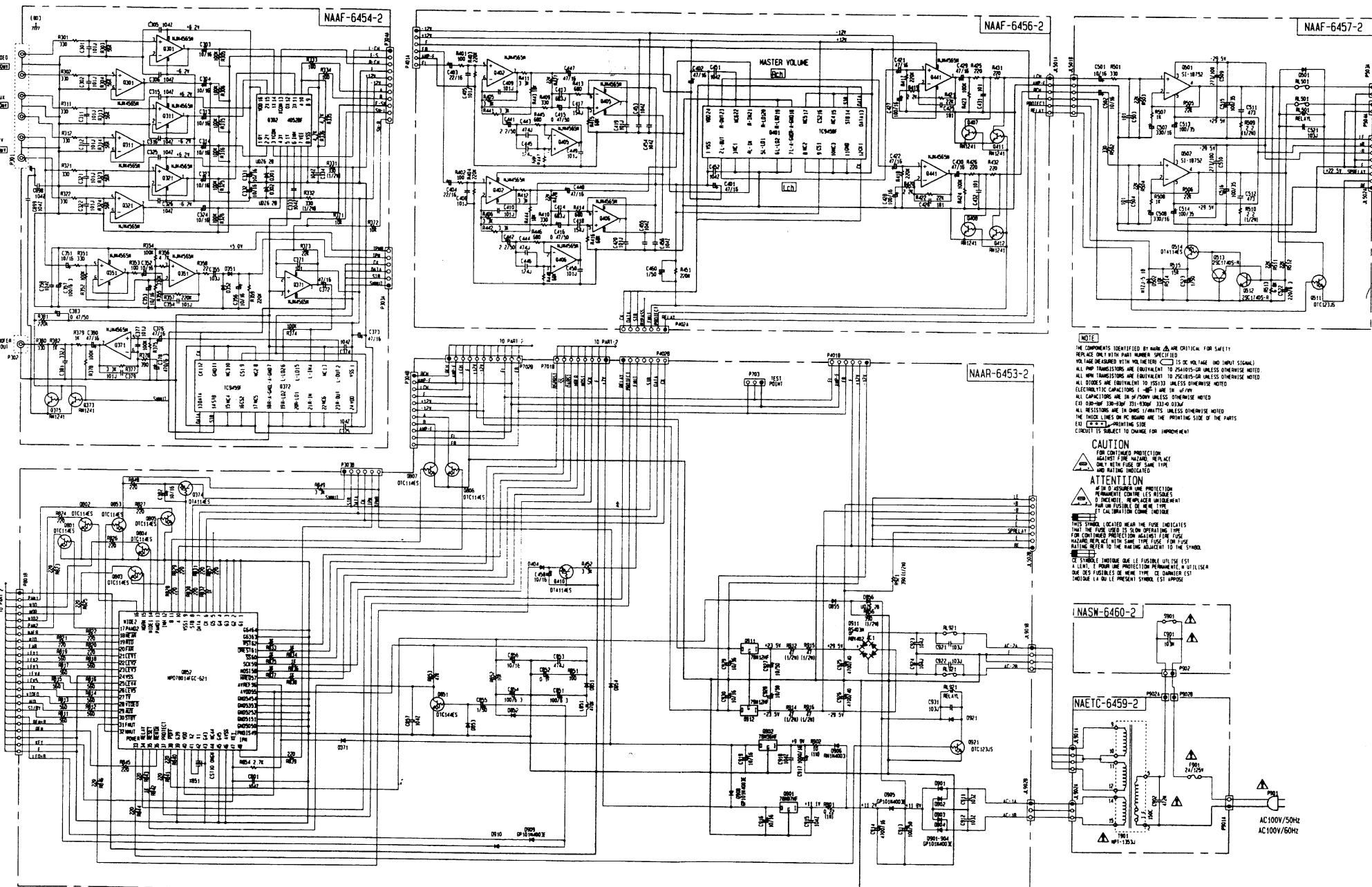
D

E

F

G

## CHEMATIC DIAGRAM



NOTE:  
THE COMPONENTS IDENTIFIED BY MARK  $\triangle$  ARE CRITICAL FOR SAFETY.  
REPLACE ONLY WITH PART NUMBER SPECIFIED.  
VOLTAGE DESIGNATED WITH VOLTMETER  $\square$  IS DC VOLTAGE (NO INPUT SIGNAL).  
ALL INPUT SIGNALS ARE DESIGNATED WITH VOLTMETER  $\square$  UNLESS OTHERWISE NOTED.  
ALL INPUT TRANSISTORS ARE EQUIVALENT TO 2N3055 UNLESS OTHERWISE NOTED.  
ALL DIODES ARE EQUIVALENT TO 1N4007 UNLESS OTHERWISE NOTED.  
ALL ZENER DIODES ARE EQUIVALENT TO 1N4713 UNLESS OTHERWISE NOTED.  
ALL ELECTROLYTIC CAPACITORS ARE 100V/100UF UNLESS OTHERWISE NOTED.  
ALL CAPACITORS ARE 100V/100UF UNLESS OTHERWISE NOTED.  
EX: 100V/100UF 330-330V 330-330V  
ALL RESISTORS ARE IN OHMS/1WATTS UNLESS OTHERWISE NOTED.  
THE NUMBER IN THE CIRCLE IS THE PRINTING SIDE OF THE PARTS  
EX: 100Ω 1W 100Ω 1W

CIRCUIT IS SUBJECT TO CHANGE OR IMPROVEMENT

### CAUTION

FOR CONTINUED PROTECTION  
AGAINST FIRE HAZARD, REPLACE  
FUSE WITH SAME TYPE  
AND RATING INDICATED

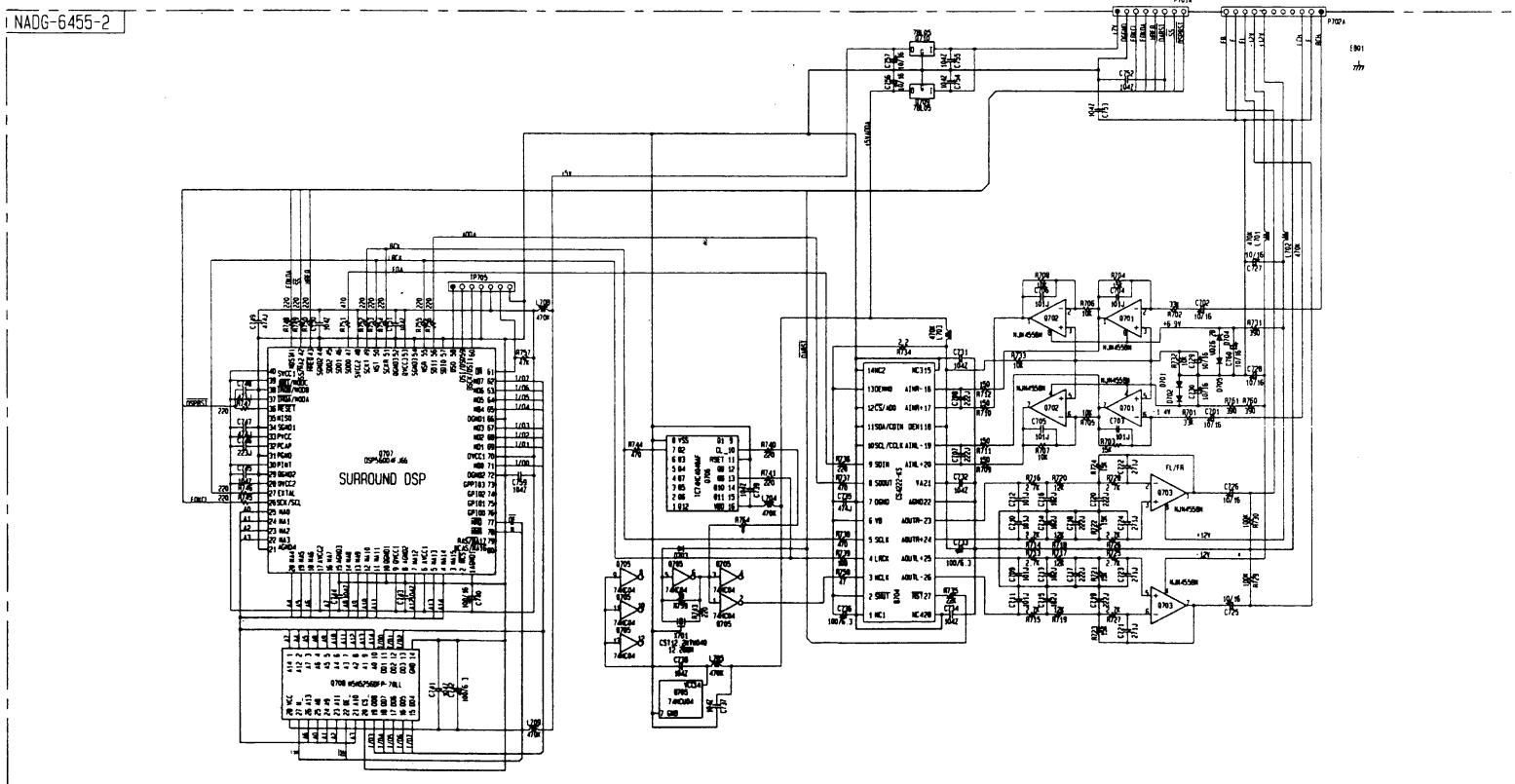
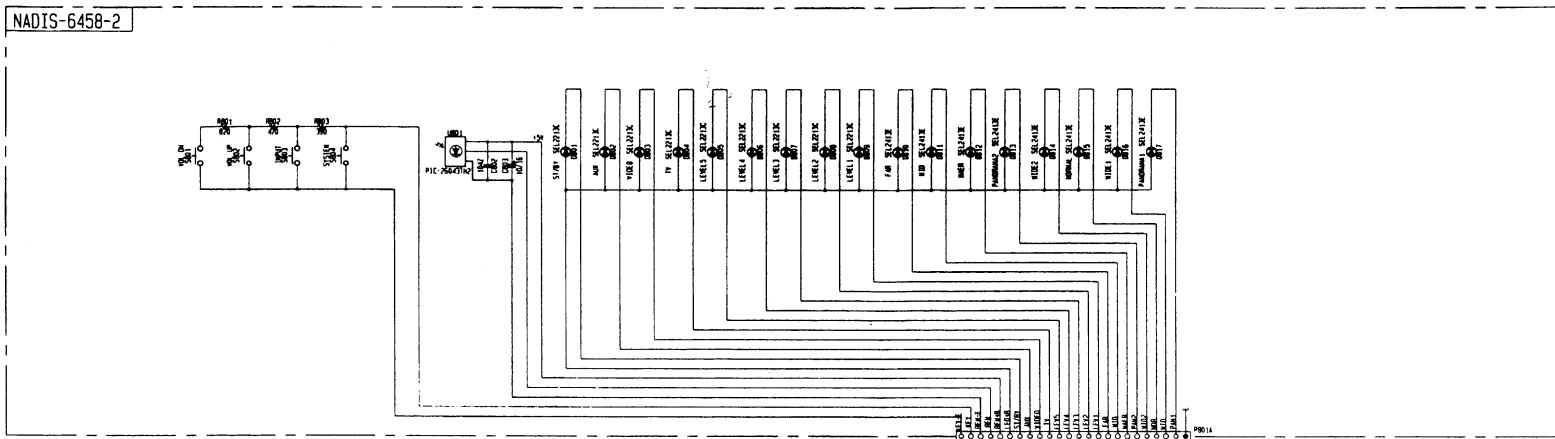
### ATTENTION

IF AN O-DESIGNER LINE PROTECTION  
CIRCUIT IS USED, REPLACE  
THE FUSE USED AT LOW OPERATING VOLTAGE  
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD.  
THE FUSE USED AT HIGH OPERATING VOLTAGE  
RATING REFER TO THE RATING INDICATED TO THE SYMBOL.  
SYNTHETIC FUSIBLES ARE NOT USEABLE.  
A LEAD, FOR LINE PROTECTION PERMANENTLY, OR UTILISE  
ONE'S FUSIBLES OF SAME TYPE TO DAMPER IT.  
NOTICE LA BOLE PRESENTE SERA APPOSEE

AC100V/50Hz  
AC100V/60Hz

A B C D E F G

**CHEMATIC DIAGRAM**



## PARTS LIST (PHC-5SW)

REF.No.	PART No.	DESCRIPTION	REF.No.	PART No.	DESCRIPTION
A01	27160426	(SUB) Heat sink	R602	4000144	PTH9M04-2.2K Thermistor
A02	801433	3SMS8W.SW+14B(BC) Tapping screw	S901	25065571	△ NRC-002 Power switch
A03	27141729	(S) Retainer	N T901	2301367	△ NPT-1352D Transformer
A04	838130088	3TTB+8B Tapping screw	F904	252159	△ 2A·UL/T-237 Fuse
A05	27141730	(PWB) Retainer	N P901	253272HIT	△ AS-UC-6#18 AC cord
A06	28175246	ISO Plate	A20	27122526A	Rear panel
A07	27160425	(MAIN) Heat sink	A21	28141385	(AC) Cushion
A08	830440109	4TTC+10C(BC) Tapping screw	A22	28141381	K t1*235*5 Cushion
A09	838430088	3TTB+8B(BC) Screw	A23	28141382	L l1*285*5 Cushion
A10	834430108	3TTS+10B(BC) Tapping screw	A24	835430108	3TTF+10B(BC) Screw
A11	27301941	△ KITAGAWAKF-41 Cord bushing	N A25	W16117B	Woofer
A12	29360404	Label SN	A26	27175382	Bottom leg
A13	28110758	Cabinet AS	N A27	8381351644	3.5STB+16A(BC) screw
A14	260208	BINDER(CLAMPER)UL	A28	28120384	Net
A15	2009990522AUL	NSAS-4P0685 Socket AS	N A29	28141386	Cushion(Urethane resin)
A16	2009990519UL	NSAS-2P0682 Socket AS	N A30	28141383	Cushion
Q515	2203063 or 2202523 or 2202524 or 2202526 or	* 2SC5198-O or 2SC4468-O Transistor * 2SC4468-Y or 2SC4468-P or 2SC5198-R	U01	1S211535-1A	NAAF-6435-1A Main amplifier circuit PC board
Q515A	223021	TBM-51W 9043 ISO sheet	U02	1S211536-1A	NAAF-6436-1A Input Circuit PC board
Q516	2203053 or 2202513 or 2202514 or 2202516 or	* 2SA1941-O or 2SA1695-O Transistor * 2SA1695-Y or 2SA1695-P or 2SA1941-R	U03	1S211537-1A	NAETC-6437-1A Transformer PC board
Q516A	223021	TBM-51W 9043 ISO sheet	U04	1S211538-1A	NAETC-6438-1A Fuse PC board
Q541	2202104 or 2202103	2SC3423-Y or 2SC3423-O Transistor	U05	1S211541-1A	NAETC-6441-1A Protect PC board
Q951	2202754	2SD1266-P Transistor	NOTE: Replacement of the transistor of mark *, if necessary, must be made from the same beta group (HFE) as the original type.		
Q952	2202764	2SB941-P Transistor			

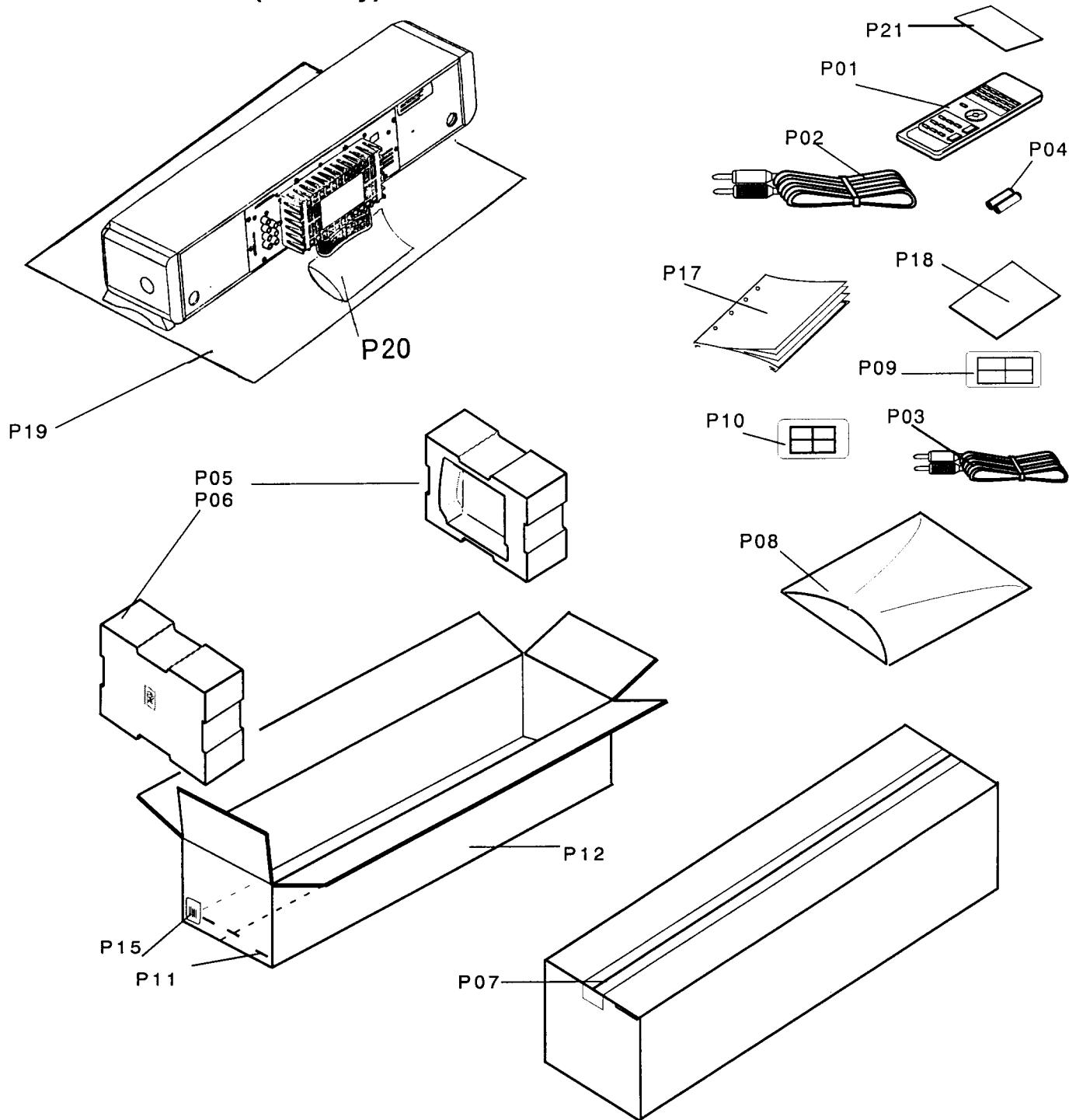
NOTE: THE COMPONENTS IDENTIFIED BY MARK  
△ ARE CRITICAL FOR RISK OF FIRE AND  
ELECTRIC SHOCK. REPLACE ONLY WITH  
PART NUMBER SPECIFIED.

# MICROPROCESSOR TERMINAL DESCRIPTION

Q852:μPD7801

PIN No.	SYMBOL	DESCRIPTION	PIN No.	SYMBOL	DESCRIPTION
1	P30/TO0	Not used.(Connect to ground)	33	P66/~/WAIT	System power supply control pin. (Power ON = "H")
2	P31/TO1	Not used.(Connect to ground)	34	P67/ASTB	Speaker relay control pin. (Relay ON = "H")
3	P32/TO2	Not used.(Connect to ground)	35	~/RESET	Input pin for reset control.
4	P33/TI1	Not used.(Connect to ground)	36	P00/INTP0/TI0	Input pin for remote control.
5	P34/TI2	Control BOOST circuit pin.	37	P01/INTP1	Detecting pin for protect signal.
6	P35/PCL	Clock output pin for electric volume control (TC9459)	38	P02/INTP2	Stoppage detection input pin.
7	P36/BUZ	Data output pin forelectric volume control (TC9459)	39	P03/INTP3	Connect to ground.
8	P37	Stobe output pin for electric volume control (TC9459)	40	VDD	Power supply. +5V
9	VSS	Ground pin	41	X2	Ceramic oscillator connection pins.
10	P40/AD0	Control pin for TC4052	42	X1	Ceramic oscillator connection pins.
11	P41/AD1	Select the TV position is "A=L", select the VIDEO position is "A=H"	43	IC	Testing pin. Connect to ground.
12	P42/AD2	Select the AUX position is "A=L" and STANDBY position is "A=H"	44	XT2	Not used. Connect to ground.
13	P43/AD3	Control pin for LED indicate. When PANORAMA mode is "H" (EXPAND mode)	45	P04/XT1	Not used. Connect to ground.
14	P44/AD4	Control pin for LED indicate. When WIDE position = "H" (EXPAND mode)	46	AVSS	Connect to ground.
15	P45/AD5	Control pin for LED indicate. When NORMAL position = "H" (EXPAND mode)	47	P10/ANI0	Key input pin.
16	P46/AD6	Control pin for LED indicate. When WIDE position = "H" (EXPAND mode)	48	P11/ANI1	IPM signal detection pin.
17	P47/AD7	Control pin for LED indicate. When PANORAMA position = "H" (EXPAND mode)	49	P12/ANI2	
18	P50/A8	Control pin for LED indicat. When NEAR position = "L" (DISTANCE Mode)	50	P13/ANI3	Not used. Connect to ground.
19	P51/A9	Control pin for LED indicat. When MID position = "L" (DISTANCE Mode)	51	P14/ANI4	Not used. Connect to ground.
20	P52/A10	Control pin for LED indicat. When FAR position = "L" (DISTANCE Mode)	52	P15/ANI5	Not used. Connect to ground.
21	P53/A11	LED indicate level control pin for mastet level, subwoofer level and surround lev	53	P16/ANI6	Not used. Connect to ground.
22	P54/A12	LED indicate level control pin for mastet level, subwoofer level and surround lev	54	P17/ANI7	Not used. Connect to ground.
23	P55/A13	LED indicate level control pin for mastet level, subwoofer level and surround lev	55	AVDD	Reference powe supply for A/D converter.
24	VSS	Ground terminal	56	AVREF	Reference powe supply for A/D converter.
25	P56/A14	LED indicate level control pin for mastet level, subwoofer level and surround lev	57	P20/SI1	HREQ pin for microprocessor(DSP56004).
26	P57/A15	LED indicate level control pin for mastet level, subwoofer level and surround lev	58	P21/SO1	MOSI pin for microprocessor(DSP56004).
27	P60	Input selector pin. When TV position is "L"	59	P22/~/SCK1	SCK pin for microprocessor(DSP56004).
28	P61	Input selector pin. When Video position is "L"	60	P23/STB	SS pin for microprocessor(DSP56004).
29	P62	Input selector pin. When AUX position is "L"	61	P24/BUSY	RESET pin for microprocessor(DSP56004).
30	P63	Standby LED control pin. When standby position is "L"	62	P25/SI0/SB0	Reset pin for CS4222.
31	P64/~/RD	Front speaker mute control pin. (muting ON = "L")	63	P26/SO0/SB1	Not used. Connect to ground.
32	P65/~/WR	Subwoofer mute control pin. ( Mute ON = "L" )	64	P27/~/SCK0	Not used. Connect to ground.

## PACKING VIEW (MP only)



## PACKING PARTS LIST(MP only)

REF.No.	PART No.	DESCRIPTION	REF.No.	PART No.	DESCRIPTION
P01	24140382	RC-382M Remote control unit	P10	29110140	3M VHB Tape
P02	2010369	Pin cord AS 1.5	P11	282321	Staple
P03	2010197	PIN-CORD	P12	29053395	Carton
P04	3010194	Battery UM-3	P15	29362406	EAN code Label
P05,P06	29091863A	Pad AS	P17	29342676	E(PHC-5P) Instruction manual
P07	29110071	SOP-400 PP tape	P18	29342677	U6(PHC-5) Instruction manual
P08	29100097-1A	350*250 Polystyrene bag	P19	29095851	Sheet 820 x 820 Mirror mat
P09	29091864	(LEG) Pad	P20	29100040	Polystyren bag
			P21	29355303	U7(PHC-5) Instruction sheet



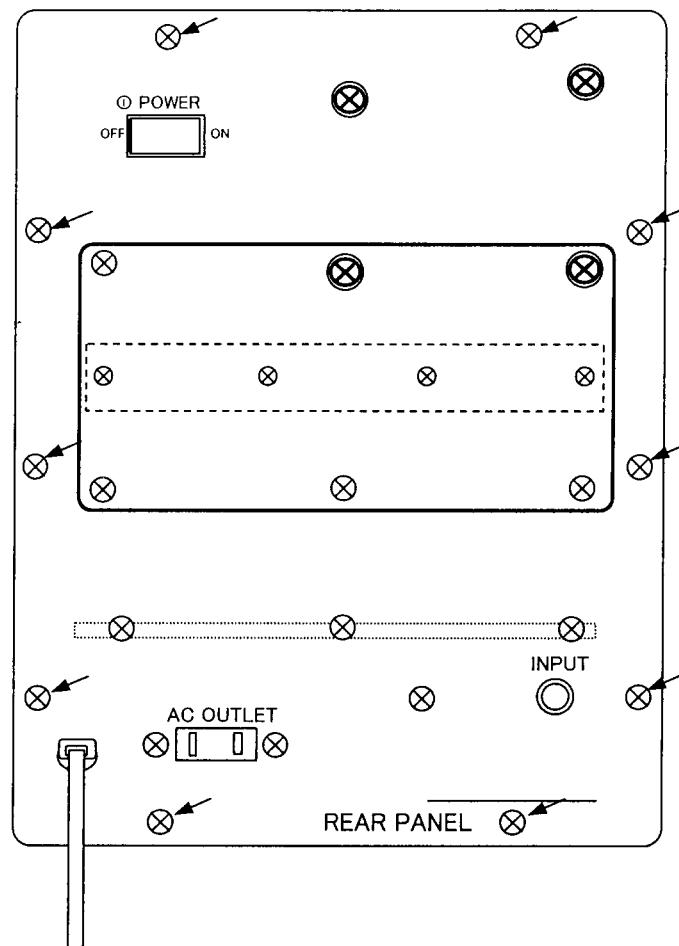
## PARTS LIST(PHC-5SW)

CIRCUIT No.	PART No.	DESCRIPTION	CIRCUIT No.	PART No.	DESCRIPTION
<b>Main amplifier circuit PC board (NAAF-6435)</b>					
<b>ICs</b>					
Q303-Q306,Q624	22240111	BA15218	F904A	25050065	YSH403T
<b>Transistors</b>					
Q501,Q502	2215116 or 2215115	2SC1775-F or 2SC1775-E	JL303	5J200606H	JL5 200 H Jumper lead
Q503,Q504	2211406	2SC2240-BL	JL953	4J250606H	JL4 250 H Jumper lead
Q505,Q507,Q509	2215133	2SB646A-C	JL911	3J400606H	PVC Jumper lead
Q506,Q510	2215153	2SD666A-C	JL953A	25051107	NSCT-3P894 Wire holder
Q513	2202800	2SC4793	JL303B	25051108	NSCT-4P895 Wire holder
Q514	2202790	2SA1837	P301	25045535 or	NSCT-5P896 Wire holder
				25045302	NPJ-1PDBL359 or
Q517	2213355	2SA933S-S	P502A	25055132	NPLG-2P116 Plug
Q517A	79030	UL TUBE 6.5TRS#2	P531	25055038	NPLG-2P29 Plug
Q518	2215163	2SD667A-C	P535A	25055167	NPLG-4P151Plug
Q519	2215173	2SB647A-C	P604,P623	25055038	NPLG-2P29 Plug
Q601,Q602,Q622	2213285	2SC1740S-S	P901A	25060092	NTM-1S33 Terminal
Q603,Q605,Q606	2213355	2SA933S-S	P921	25051990	▲ NSCT-2P1777AC outlet
Q604	2212600 or 2213580	DTA124ES or RN2203	E301	25065425	Terminal M3
Q621	2213160 or 2214220	DTC124ES or RN1203	E810	27141059	Retainer (Ground)
<b>Diodes</b>					
D601,D615,D627,	223163 or 223205	1SS13 or 1SS270A	E811,E812	260224	CP-1S
D621,D622	224470272	MTZJ2.7B Zener	E813	27190608-1	UA-0 V0 Holder
<b>Input Circuit PC board (NAAF-6436)</b>					
<b>ICs</b>					
	Q301	22240111	BA15218	IC.	
<b>Capacitors</b>					
D641	225292D	SEL4310G-D LED	C301,C303,C30-	354781009	CE04W50V-10M Electric.
D642	225290	SEL4110R LED	C955,C956	354742219	CE04W16V-220M Electric.
D911	22380021	RS403L			
D932	223163 or 223205	1SS13 or 1SS270A	JL303A	25051109	NSCT-5P896 Wire holder
D933	224470562	MTZJ5.6B Zener	JL953B	25051108	NSCT-4P895 Wire holder
D951,D952	224471503	MTZJ15C Zener			
<b>Capacitors</b>					
C322,C344,C517,	354781009	CE04W50V-10M Electric.			
C323	354786899	CE04W50V-0.68M			
C324	354780109	CE04W50V-1M Electric.	C901	3500191	▲ DE7150F-103M IS C
C325,C519,C520	374722244	ECQ-V50V-224J Plastic.			
C326,C330	354780479	CE04W50V-4.7M Electric.	C901A	27301216	▲ SB1925A Capacitor cover
C327	354780339	CE04W50V-3.3M Electric.	JL911B	25050267	NSCT-3P95 Socket
C328	374726844	ECQ-V50V-684J Plastic.	P904A	25055676	NPLG-2P632
C332	374723344	ECQ-V50V-334J Plastic.			
C333	374721024	ECQ-B50V-102J Plastic.			
C339,C340,C347,	374721044	ECQ-V50V-104J Plastic.			
C341	374724744	ECQ-V50V-474J Plastic.			
C343	374726834	ECQ-V50V-683J Plastic.			
C345	374721054	ECQ-V50V-105J Plastic.			
C501	354722219	CE04W6.3V-220M			
C502,C503	374721515	ECQ-V50V-151K Plastic.			
C504	354724719	CE04W6.3V-470M			
C526,C528,C621,	354781009	CE04W50V-10M Electric.			
C601	354763309	CE04W35V-33M Electric.			
C622,C931	354781009	CE04W50V-10M Electric.			
C623,C951-C954	354742219	CE04W16V-220M Electric.			
C630	374721044	ECQ-V50V-104J Plastic.			
C903,C904	374731044	ECQ-V100-104J Plastic.			
C911,C912	3504349	CE69W50V-4700M	N		
<b>Resistors</b>					
R505,R506	415421023	R25G-1K Carbon R. 0.25W			
R508	415424703	R25G-47 Carbon R. 0.25W			
R511,R513,R514	415428203	R25G-82 Carbon R. 0.25W			
R512	415426803	R25G-68 Carbon R. 0.25W			
R526	443521514	RS1/2WBJ-150 Metal oxide			
R528	443523314	RS1/2WBJ-330 Metal oxide			
R531,R532	4500018	BPR58FK-0.22 Metal			
R533	453630334	RNU1WCJ-3.3 Metal			
R544	5210359	N06HR100BC Trim	N		
R615	443521234	RS1/2WBJ-12K Metal			
R931,R932	443628214	RS1WBJ-820 1W Metal			
R934	443521024	RS1/2WBJ-1K Metal oxide			
R951,R952	415424703	R25G-47 Carbon R. 0.25W			
R953,R954	443528224	RS1/2WBJ-8.2K Metal			

NOTE: THE COMPONENTS IDENTIFIED BY MARK  
▲ ARE CRITICAL FOR RISK OF FIRE AND  
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PART NUMBER SPECIFIED.

**PC board replacement**

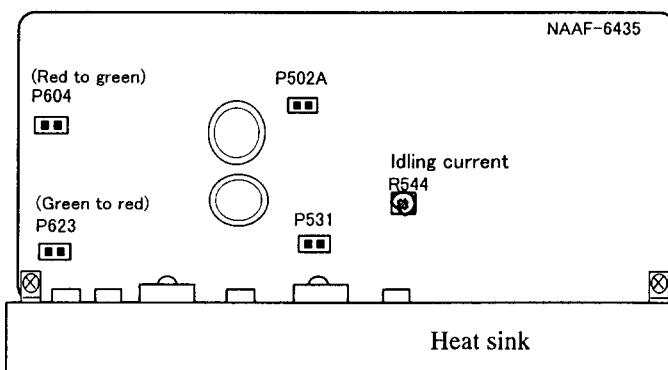
Remove 10 screws (  mark), and remove the main PC board.



**ADJUSTMENT OF IDLING CURRENT**

Set the voltage at P531 to 6mV by adjusting R544 after 5 minutes heat running.

Condition: No load. No input signal.



**Confirming operating**

1) Auto power ON/OFF.

After 10 second when the input is no signal and power switch is on, shorting the P604, check the color of LED changes red to green.

When the unit is power on and the color of LED is green, shorting for p623, check the color changes green to red.

## Virtual Surround Technology

### Theater-Dimensional™ Surround

Onkyo R & D center introduced our original virtual surround technology called "Theater-Dimensional"™ Surround.

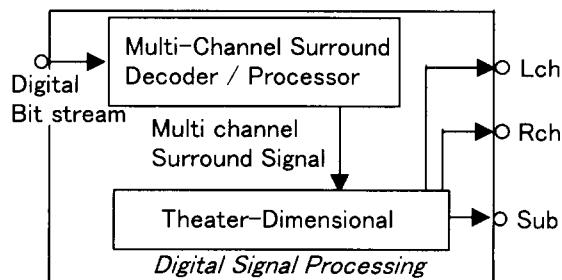


The first research for the virtual sound was on the human ears. The human ears locate where the sound come from by analyzing the difference of arrival time and level difference of the sound wave to left and right ears. This characteristic of our ears is applied in the algorithm of the virtual sound technology.

The algorithm is programmed to the DSP (Digital Signal Processor). The multichannnel surround sound, Dolby Digital for example, signal is processed to 2-channel sound by the DSP. There are only 2 speakers set up, but the listener in the certain area called "sweet spot" can hear the sound from the virtual surround speakers.

**Theater-Dimensional** Surround can locate 2 virtual surround speakers both sides of the listener. The advantage of the virtual surround saves cost and space for the surround speakers. It can be said that **Theater-Dimensional** Surround is good for personal use.

**Theater-Dimensional** Surround is licensed as a Virtual Dolby Digital by the Dolby Laboratories. Prototype was introduced in the Audio Fair '97 in Japan and Winter CES in the USA. The quality is already known for one of the best in the industry. **Theater-Dimensional** Surround will be applied mainly to the Onkyo future products.



Block diagram of "Theater-Dimensional"

## Advantages

### Virtual Surround Speakers

Most of conventional virtual surround can locate virtual speakers about 120 degrees from the front center. However, as shown in the figure 2, the listener might locate the virtual speaker about 60 degrees from the front center. It happens because the arrival time of the sound is almost same for above two conditions.

On the other hand, **Theater-Dimensional** Surround locate the virtual speakers directly to right and left side of the listener as shown in figure 1. By applying this method, the listener can hear better surround effect than conventional virtual surround.

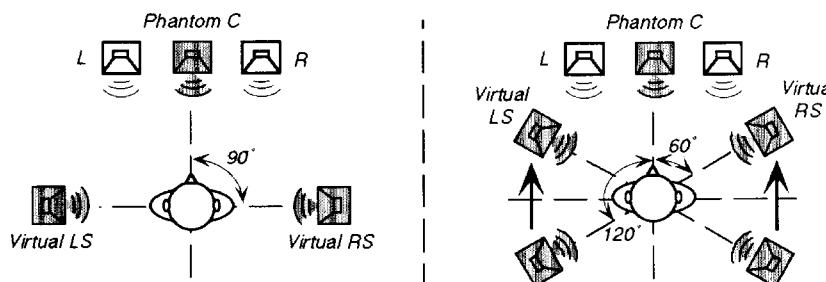


Fig.1 Theater-Dimensional

Fig.2 conventional virtualizer

### Monaural Surround Spaciousness

When the surround channels were monophonic like Dolby Pro Logic, the listener locate at the center. If you hear the identical sound from 2 channels, you feel the sound is located in your head. (Just like when you listen the music with your head phone set) When it comes to the virtual surround, it is very critical. In the **Theater-Dimensional** Surround processing, there are our original algorithm to remain spacious. Even for the Dolby Digital sound source ( sometimes signals of surround channels are substantial monaural), this algorithm is applied.

### Widening the Front Sound Field

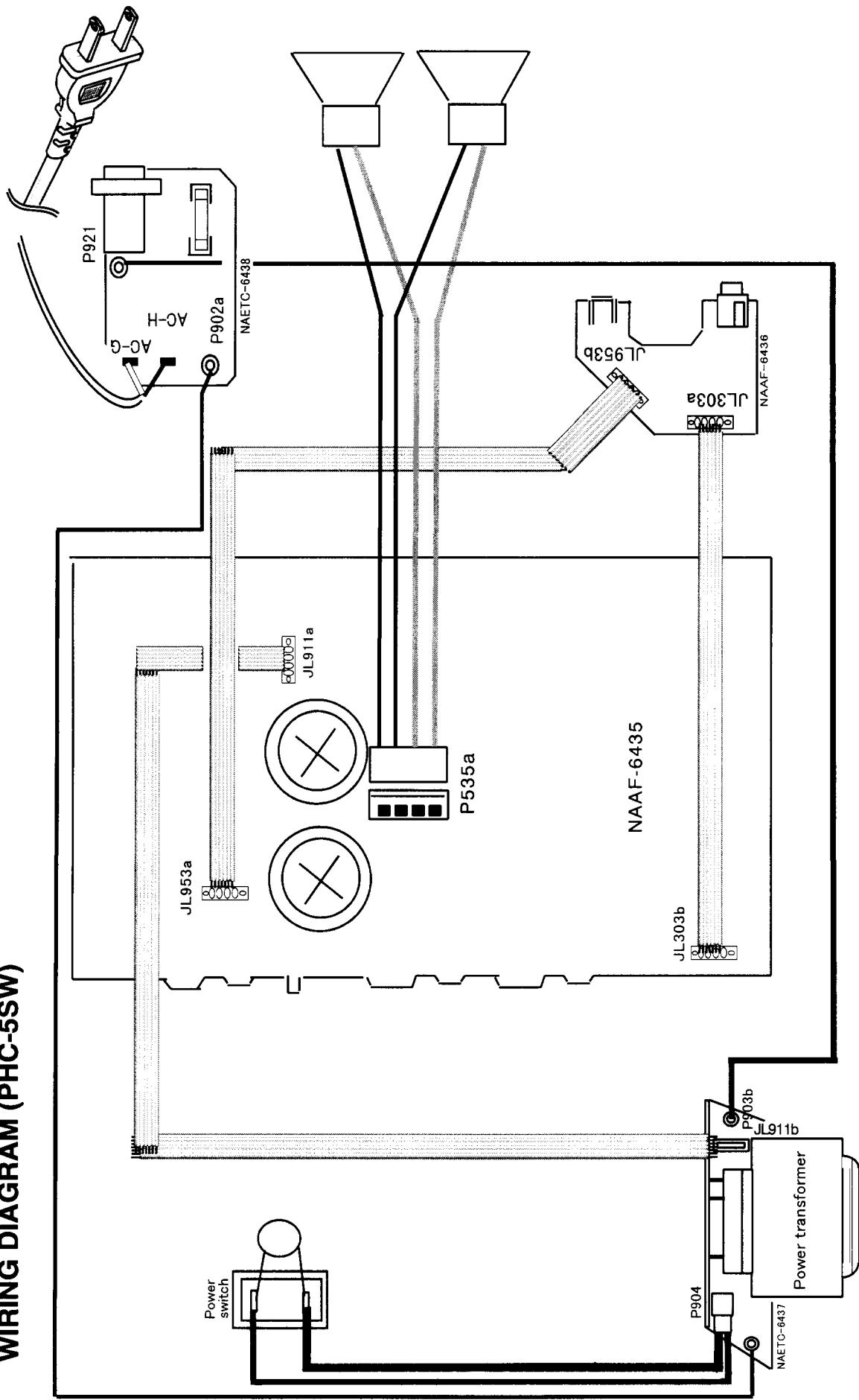
When the distance between front 2 speakers is not enough to get surround field, **Theater-Dimensional** surround processor can widen the front sound field.

### Flexibility for various conditions

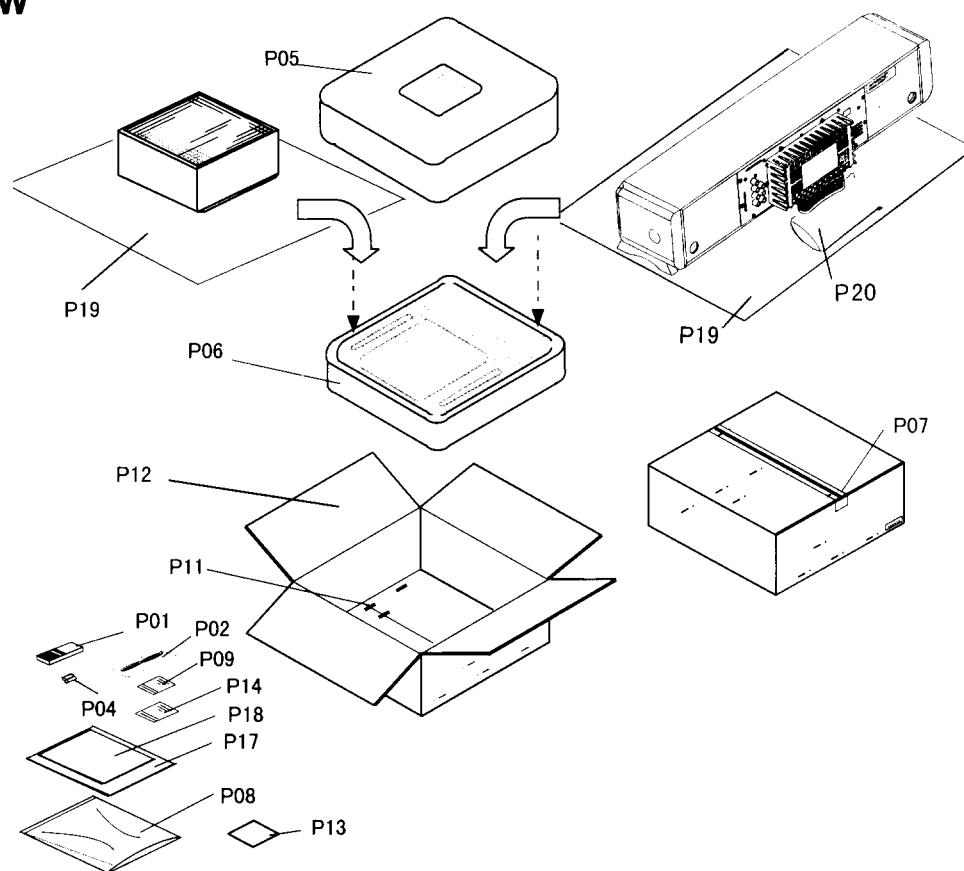
The effect of the virtual surround requires appropriate speaker setting. However, in the actual listening room, the condition ( distance between front 2 speakers ,and distance between speakers and listener ) varies. For those listeners, There are the flexibility in **Theater-Dimensional** surround set up parameters for the optimam virtual surround effect.

\* "Dolby" and "Pro Logic" are trademarks of Dolby Laboratories Licensing Corporation.  
 \* "Theater-Dimensional" is trademark of ONKYO Corporation.

## WIRING DIAGRAM (PHC-5SW)



## PACKING VIEW



## PACKINNG PARTS LIST

REF.No.	PART No.	DESCRIPTION	REF.No.	PART No.	DESCRIPTION	
P01	24140382	RC-382M Remote control	N	P11	282321 Steple (10 PCS)	
P02	2010197	Pin cord AS	P12	29053366 Carton	N	
P03	2010369	( 1.5) Pin cord AS	N	P13	29365019] Warranty card	
P04	3010194	Battery UM-3 x 2	P14	29358002] Service station list	N	
P05	29091867	(U) Pad	N	P15	29362371 (UPC)AS Label	N
P06	29091868	(D) Pad	N	P16	29362393 (FCC) Label	N
P07	29110071	SOP-400(CLEAR50MT) Plastic tape	P17	29342632 E(PHC-5) Instruction manual	N	
P08	29100097-1A	350*250 Polystyrene bag	P18	29355298, E(PHC-5) Instruction sheet	N	
P09	29091864	(LEG) Pad	P19	29095848 Sheet (820 x 820 x 0.5)	N	
P10	29110140	3M VHB Tape	P20	29100040 Polystyrene bag		

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